

**Fig. 2 Amino acid sequence composition correspondent to the S-1 region of the  $\alpha$ -MHC in rat and mouse.**

Rat $\alpha$	MTDAQMADFGA-ARYLRKSEKERLEAQTRPFDIRTECFVPDDKEEYVKAKIVSR
Mouse $\alpha$	.....A.Q.....
Rat $\alpha$	EGGKVTAETENGKTVTVKEDQVMQQNPPKFDKIEDMAMLCHTFLHEPAVLNLY
Mouse $\alpha$	.....
Rat $\alpha$	KERYAAWMIYTYSGLCVTVNPKWLPVYNAEVVAAYRGKKRSEAPPHIFSIS
Mouse $\alpha$	.....
Rat $\alpha$	DNAYQYMLTDRENQSILITGESGAGKTVNTRKVIQYFASIAAIGDRSKKDNPN
Mouse $\alpha$	.....
Rat $\alpha$	KGTLEDQIIQANPALEAFGNAKTVRNDNSSRFGKFIRIHFGATGKLASADIET
Mouse $\alpha$	.....
Rat $\alpha$	EKSRVIFQLKAERNYHIFYQILSNKKPELLDMLLVTNPNPYDYAFVSQGEVSV
Mouse $\alpha$	.....
Rat $\alpha$	SIDDSEELLATDSAFDVLGFTAEEKAGVYKLTGAIMHYGNMKFKQKQREEQAE
Mouse $\alpha$	.....S.....
Rat $\alpha$	PDGTEDADKSAYLMGLNSADLLKGLCHPRVKVGNEYVTKGQSVQQVYYSIGAL
Mouse $\alpha$	.....
Rat $\alpha$	AKSVYEKMFNWMVTRINATLETQPRQYFIGVLDIAGFEIFDFNSFEQLCINF
Mouse $\alpha$	.....
Rat $\alpha$	TNEKLQQFFNHHMFVLEQEYKKEGIEWEFIDFGMDLQACIDLIEKPMGIMSI
Mouse $\alpha$	.....
Rat $\alpha$	LEECCMFPKATDMTFKAKLYDNHLGKSNNFQKPRNVKGKQEAHFSLVHYAGTV
Mouse $\alpha$	.....
Rat $\alpha$	DYNILGWLEKNKDPLNETVVGLYQKSSLKLMATLFSTYASADTGDSGKGKGGK
Mouse $\alpha$	.....
Rat $\alpha$	KKGSSFQTVSALHRENLNKLMTNLRTHPHFVRCIIPNERKAPGVMDNPLVMH
Mouse $\alpha$	.....
Rat $\alpha$	QLRCNGVLEGIRICRKGFNRIYGDQRQRYRILNPAAIPEGQFIDSGKGAEK
Mouse $\alpha$	.....R.....
Rat $\alpha$	LLGSLDIDHNQYKFGHTKVFFKAGLLGLEEMRDERLSRITRIQAQARGQLMR
Mouse $\alpha$	.....
Rat $\alpha$	IEFKKMVERRDALLVIQWNIRAFMGVKNWPWMK ...
Mouse $\alpha$	.....

Fig. 3 A)



B)



C)



Fig. 4A Amino acid sequence alignment of the NH2 terminal sub-domain in myosins II.

Ch Sk	6	....EMAAF	GEAAPYLrZS	EKERIEAQNZ	PFDAzSSVFV	.....VHPKE
Ch Sm	2	AQKPL....	.SDDEKFLFV	DKNFVNNPLA	QADWSAKKLV	WV...PSEKH
Dicty	4	....IHDR	TSDYHKYLKV	KQG..DSDLF	KLTVSDKRYI	WYNPDPPERD
Scallop	6	FSD.PDF	Q....YLAVD	RKKLMKEQTA	AFDG..KKNC	WV...PDEKE
Rat $\alpha$	1	MTDAQMA DF	GA.ARYLRKS	EKERLEAQTR	PFDIRTECFV	.....PDDKE
Mouse $\alpha$	<input type="checkbox"/>	MTDAQMA DF	GAAAQYL RKS	EKERLEAQTR	PFDIRTECFV	PDDKE
Human $\alpha$	<input type="checkbox"/>					
Rat $\beta$	1	MADREMA AF	GAGAPFLRKS	EKERLEAQTR	PFDLKKDV FV	.....PDDKE
Human $\beta$	1	MGDSEMA VF	GAAAPYL RKS	EKERLEAQTR	PFDLKKDV FV	PDDKQ
Pig $\beta$						

Fig. 4B Amino acid sequence alignment of the converter domain in myosins II.

Ch Sk	727	RVLNASAIPE	GQFMDSKQAS	EKLLGGGDVD	HTQYAFGHTz	VFFzAGLLGL
Ch Sm	737	EILAANAIPK	G.FMDGKQAC	ILMIKALELD	PNLYRIGQSK	IFFRTGVLAH
Dicty	708	YLLAPN.VPR	D.AEDSQKAT	D.VLKHLNID	PEQYRFGITK	IFFRAGQLAR
Scallop	721	SILAPNAIPQ	G.FVDGKTVS	EKILAGLQMD	PAEYRLGTTK	VFFKAGVLGN
Rat $\alpha$		RILNPAAIPE	GQFIDSGKGA	EKLLGSLDID	HNQYKFGHTK	VFFKAGLLGL
Mouse $\alpha$		RILNPAAIPE	GQFIDSRKGA	EKLLGSLDID	HNQYKFGHTK	VFFKAGLLGL
Rat $\beta$		RILNPAAIPE	GQFIDSRKGA	EKLLGSLDID	HNQYKFGHTK	VFFKAGLLGL

Fig. 4C      **Amino acid sequence alignment of the sub-domain comprising the G342S mutation in myosins II.**

	#
Ch Sk      340	I L G F S A D E z T
Ch Sm      341	I M G F T E E E Q T
Dicty      234	I V G F S Q E E Q M
Rat $\alpha$	V L G F T A E E K A
Mouse $\alpha$	V L S F T A E E K N
Human $\alpha$ .....	V L G F T S E E K N
Rat $\beta$	V L G F T P E E K N
Pig $\beta$	V L G F T S E E K N
Human $\beta$	V L G F T S E E K N
Human Emb	I L G F T P E E K S
Rat Emb	I L G F T P E E K S
Ch Emb	I L G F T P D E K T
Human Per	I L G F T P E E K V
Human IIA	
Human IIX	
Human IIB	
Hamster	V L G F T A E E K A
Drosoph	
CeIIA	I M G F E D N E T M
RnCaB	V L G F T P E E K N
MaCaB	V L G F T S E E K N
Ai II	I L G F T P E E K S
Dm II	I L G F T K Q E K E
Ch SmII	I M G F S E E E Q L
Oc SmII	I M G F S E E E Q L
Ch nmII	I M G I P D E E Q I
Human nmIIA	I M G I P E E E Q M
Rat nmII	I M G I P D E E Q I
Human nmIIB	I M G F S H E E I L
Xl nmII	I M G F S H E E I L
Dm nmII	I M G M T S E D F N
Sc Myo1 (IIA)	I I G F S K D Q I R

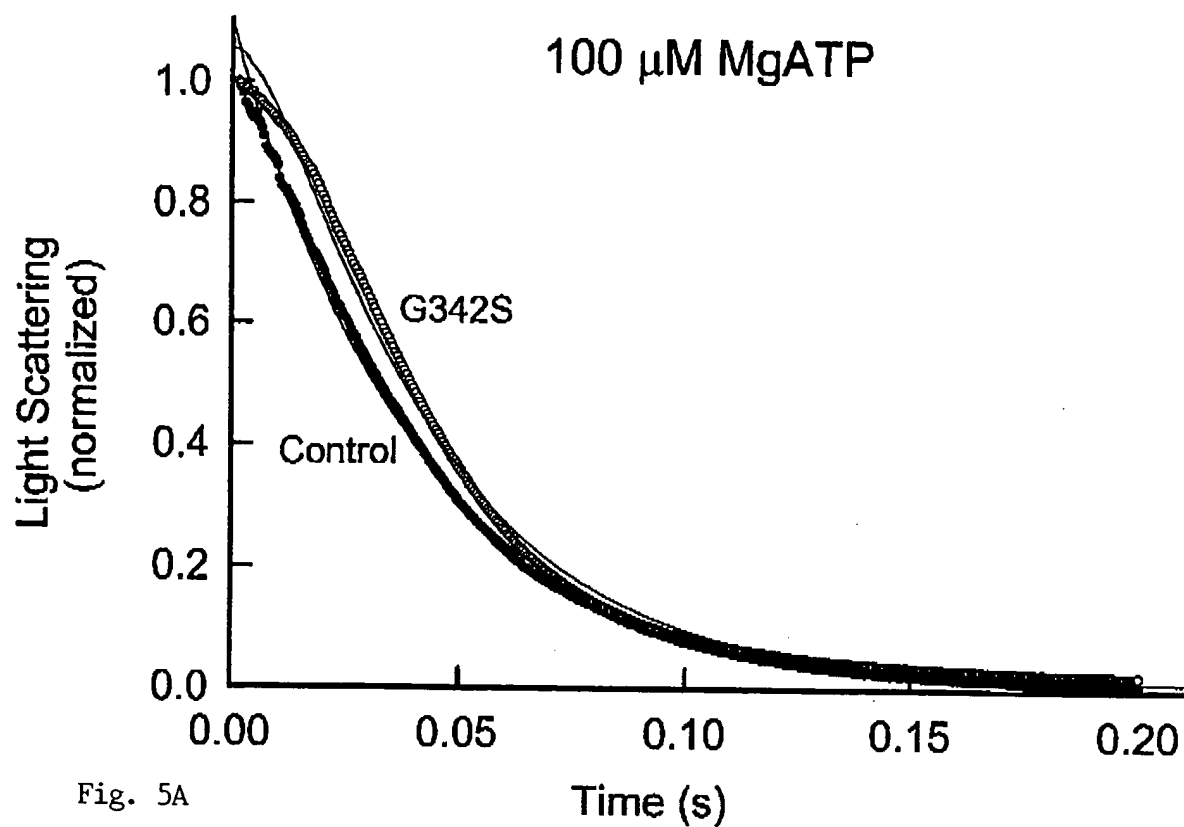


Fig. 5A

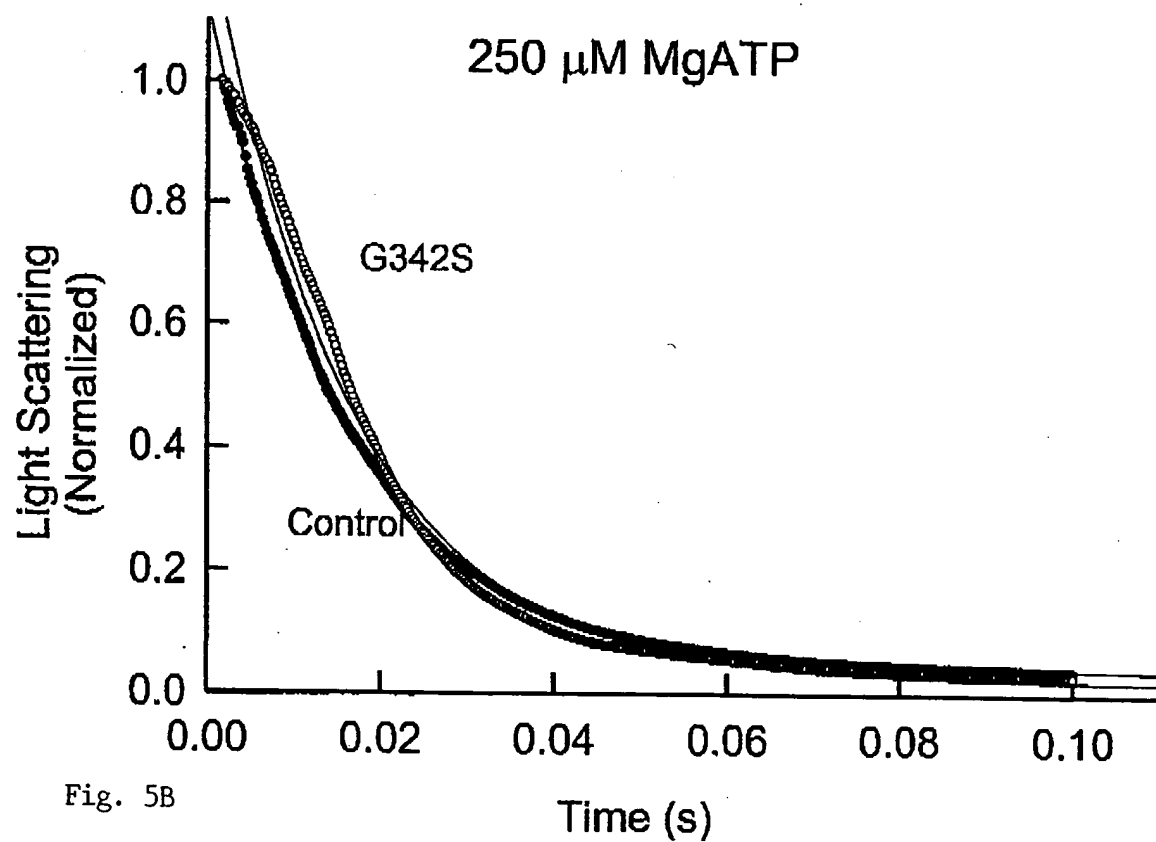


Fig. 5B

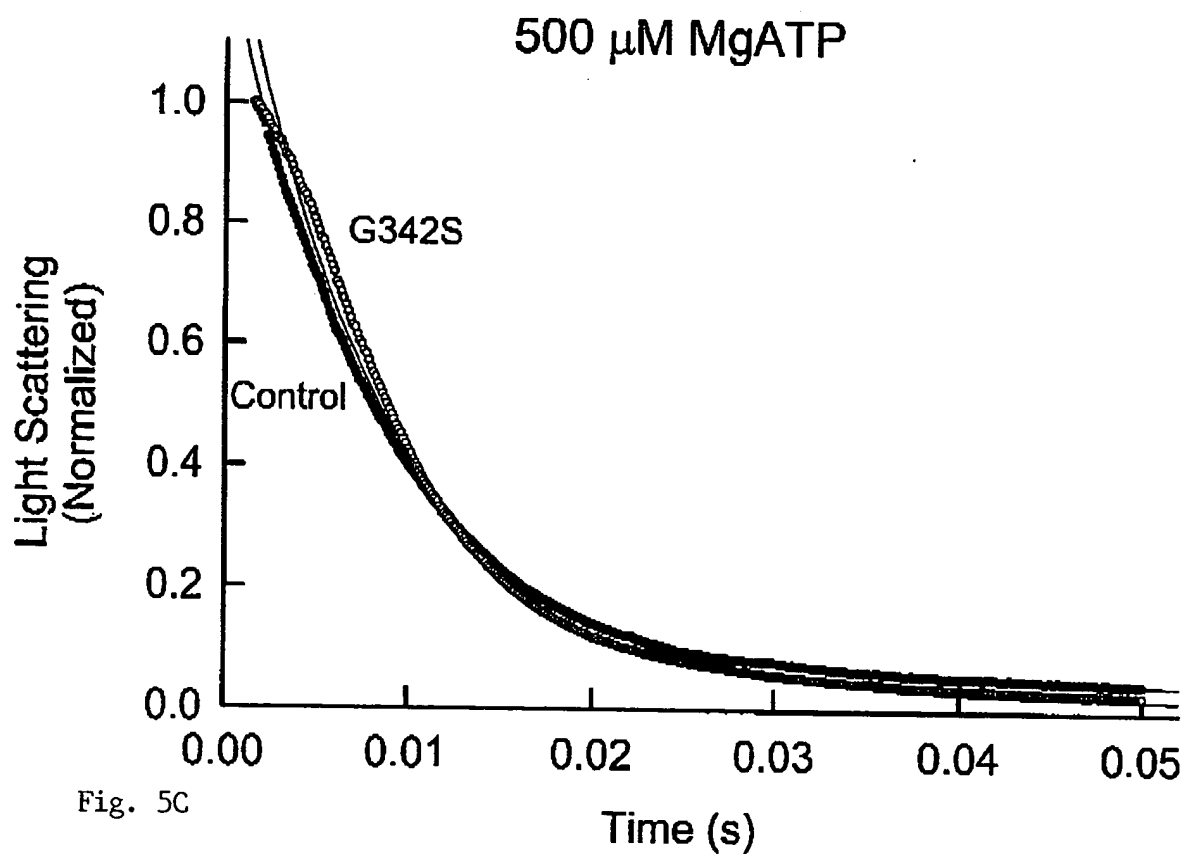


Fig. 5C

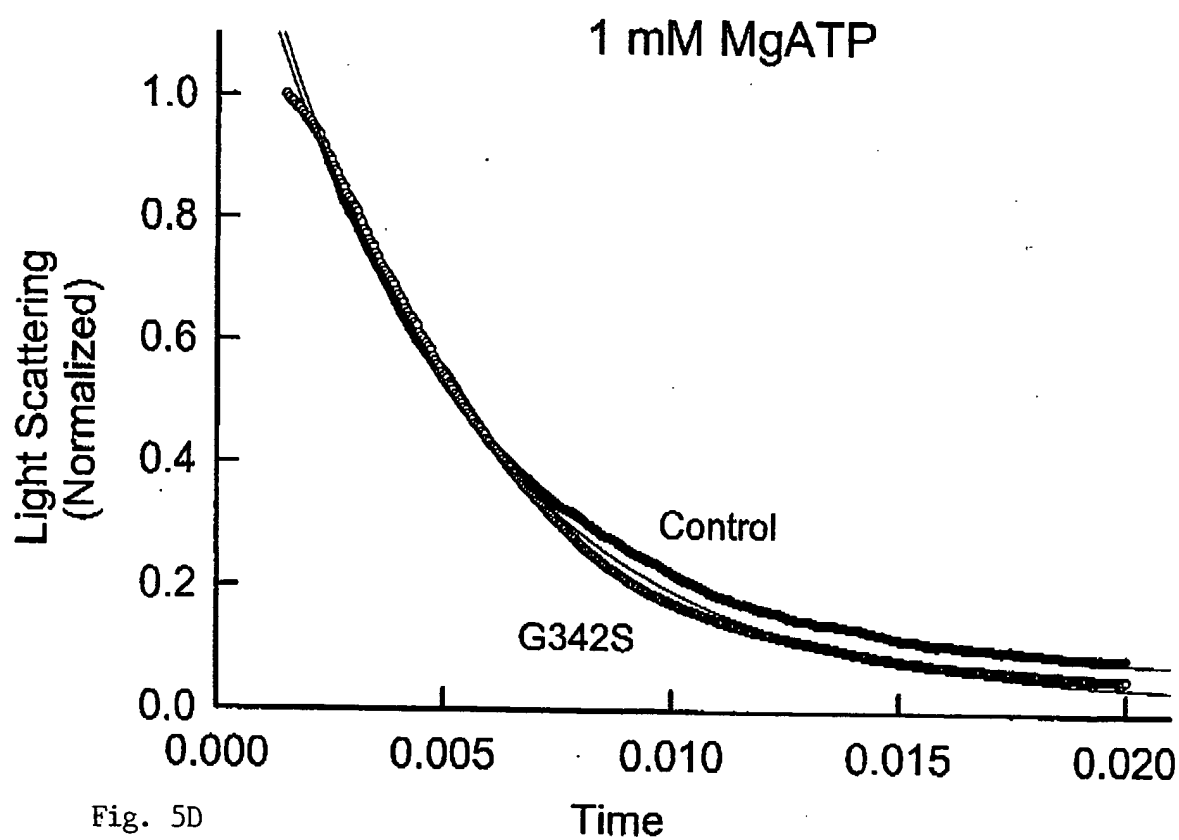
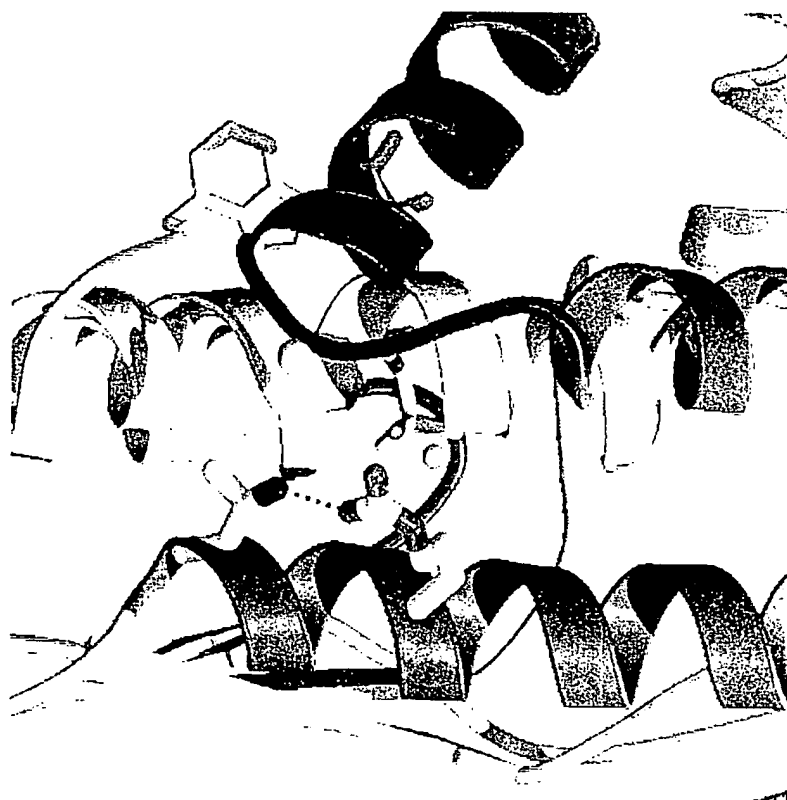


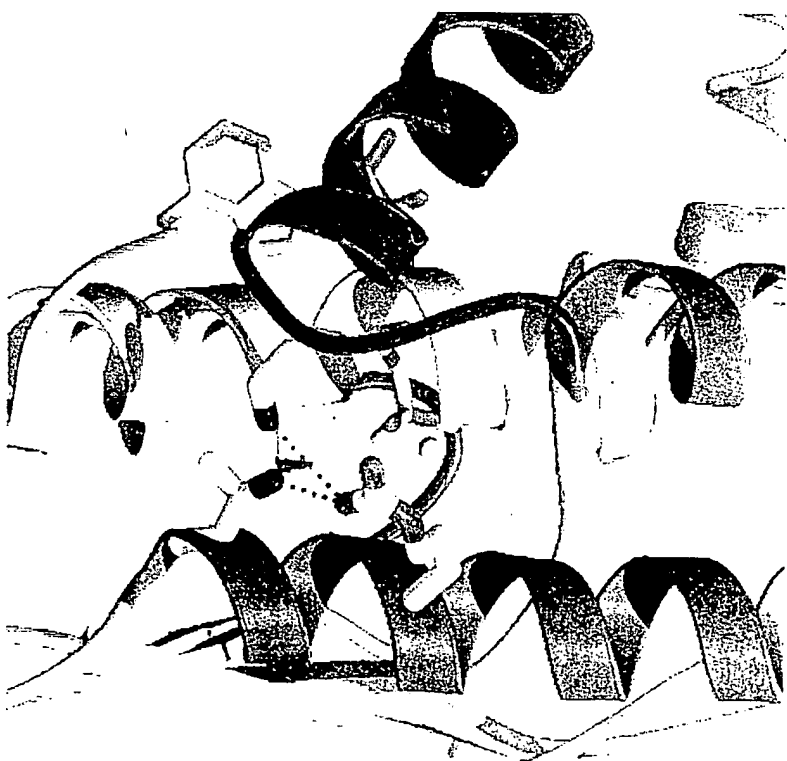
Fig. 5D

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Fig. 6



A



B



Fig. 7



A



B